July 2014

Arbed-Esch 3-Strand Rod Mill Report w/ Ending 26 January 1963

J. C. Andrews

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5 February 1963

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ARBED-ESCH 3 STRAND ROD MILL REPORT

W/ENDING 26 JANUARY 1963

CROP AND COBBLE SHEARS:

The second group of crop and cobble shears are not functioning correctly, causing cobbles from hooked front ends not entering Stand 14. Also occasionally the shears double-cut causing a cobble between the shear knives, or fail to cut a front end resulting in a finishing mill cobble.

The trouble is of long standing, and is an electrical problem in the control circuits of the shear motors, whereby the acceleration and deceleration times for a single cut vary with different temperatures in the equipment.

The method of setting shear speed at Arbed, is to run all the second groups of shears alternatively on single cut and scrap cut for several minutes before calling the mill on. During this so-called "warming up" period the shear speed on single cut increases noticeably, as does the degree of overun from the zero starting point. When a point is reached where the overun is approaching the double cut position, the pulpit control is eased back until the overun stops just short of this point. The mill is then called on. If the rate of feeding the mill remains constant then the shear speed also remains constant, but if for reasons of a cobble one line is off for a few minutes, then the shear on that line will operate at a slower speed when cutting first time after the stoppage, because the equipment has "cooled down" electrically. This sometimes causes a hooked front end.

Conversely, if the shears are set when the equipment temperature is low, and the mill is then called on at a high rate of feeding, the shears gradually increase in speed and successive front end crops become shorter and shorter until they eventually miss. At times the increase in speed with temperature rise will cause the shear to overun and double cut.

Arbed seem to have accepted this situation as normal, but will now call in Schnieder Westinghouse to re-test the equipment and bring instruments to accurately check the speed.

The present method of setting the shears is by constantly regulating the speed to give the maximum overun possible without causing a double cut, regardless of the stock speed at Stand 13.

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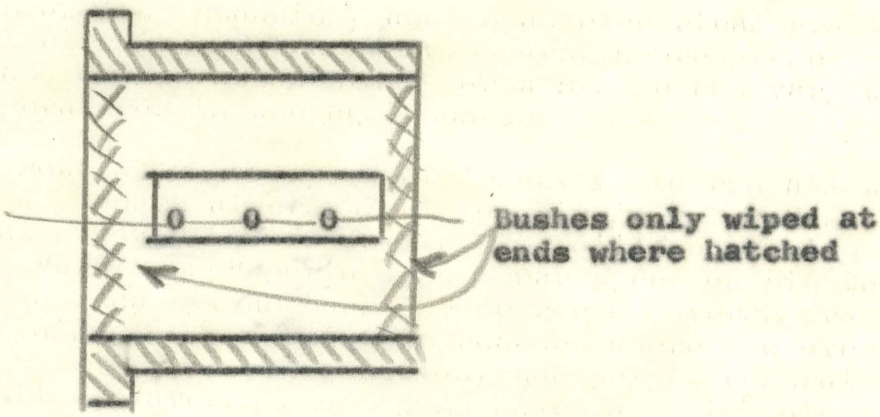
FINISHING MORGOIL BEARING FAILURES:

An examination of a set of finishing mill Morgoils which were taken out of the mill last week showed three of the white metal bushes wiped, two slightly, one severely. They were all top chocks, one on Stand 18 and two on Stand 22. Inspection showed that in each case the wiping was confined to each end of the bushes and that the area in the centre, in the region of the oil pocket, was undamaged. See Sketch:-



The symptoms were that the bearings had been run for a short period with a reduced amount of oil, maybe sufficient to prevent the middle zone of the bush from pickingup, but not enough to spread the oil to the outside edges.

Enquiries into the proceedure of starting the mill up at 6 o'clock in the morning, raised doubts as to whether enough time was being allowed for the oil to circulate through the chocks before running the mill up to maximum speed. A new procedure will be adopted and special care taken while the very cold weather lasts, to see that the oil is reaching the top chocks at the correct temperature and that the mill is turned over at base speed for 5 minutes before running up.

A modification to the oil supply pipes from the two reduced pressure stations will also be made in order to feed oil to the slower speed stands first as done at Felten. I am also hoping to get electric heating tapes and lagging fitted to the pipework. It may be significant that the affected bearings namely Stands 18 and 22, were each on the end of a supply header.

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COIL UNLOADER:

Slow speed of operation of the rams led to the examination of the hydraulic ram traversing cylinders and these were found to be badly scored internally by swarf. The swarf originated from scoring of the cushioning cylinders at each end of the main cylinder, caused by the action of a steel piston working in a steel cylinder. Metal cuttings were also found in the control valves, magnetic filter and one hydraulic pump has been damaged internally.

The suppliers of the hydraulic cylinders have inspected the damaged parts and will replace the cylinder bodies, and furnish bronze pistons. The system will be flushed and recharged with new oil, and the speed of operation of the rams checked.

DEMAG MILL HOOK CARRIER SYSTEM:

A representative of Pholig, who detailed and built the Demag Hook Carrier has visited the site to study the operation of the Hook Carrier when running at speeds 3 & 4, following damage caused by the Hooks jamming at the tilting cam track at the Coil Turnup. Some modifications are being made and a further report will be given.

WATER SWITCH BOX AFTER FINISHING MILL:

Arbed are making a new water switch box which can be traversed on slide rails and slewed to give better alignment of the switch pipes and delivery pipes after Stand 25, when working on the end passes. The original box has provision for adjustment sideways, but Arbed are not satisfied with this set-up.

WATER BOX BEFORE STAND 18:

It is reported from Felten and confirmed at Arbed that the incidence of front ends failing to enter the receiving guides at No. 18 is greater when working on the extreme end passes, especially if the receiving guides are set close to the stock size to prevent "banana ends" out of Stand 18. e.g. when the guides are set to 11 mm inside dimension for a square which is 10.7 across the diagonal.

The reason seems to be the acute angle on the swiveling trough section which connects from the repeater to the water box. On the Felten Mill the Water Box and snap shear unit traverse parallel with the mill centre line and this puts a double angle in the stock. At Arbed and Ougree the water box and snap shear unit pivot with the trough section but this gives a bad angle into the receiving guide. Felten are considering mounting the repeater so that it can be traversed across to line up with

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with the passes in Stand 18 and allow the misalignment to be taken up in the water cooled pipes after No. 17.

CHARGING CONVEYOR RAM BUGGY:

On five occasions recently, delays of 1.1/2 to 2 hours have been caused when the charging buggy has overun the back stopping position through electrical faults in the cam type limit switch. On each occasion the chain adjusting turnbuckles of the ram buggy have run over the back set of chain sprockets breaking the chain etc. The safety stop limit switch has also failed to prevent the buggy from overunning. A spring loaded buffer stop will be fitted at the end of the charging buggy rails to prevent further mechanical damage. In the event of an overun, the shearing pins in the driving coupling would then break.

NOTES TO MARTY GILVAR:

1. I reported some time ago on the difficulty of maintaining the grease flexes which lubricate the lifting linkage of the drum inside the bottom chamber of the laying reels. Siemag have now come up with an all metal flexible similar to "Titeflex", which withstands heat very well, and has been on trial at Felten for several months. This will be supplied as standard on future mills, and will be fitted at Arbed where similar trouble has been experienced with the flexes burning away.

2. Coil Unloader speed of outward travel of ram. The suggestions from George Macmillen to Stan Pridmore on how to tackle this problem will be tried out when the new cylinders are fitted. See earlier reference to Coil Unloader in this report.

3. Water box before Stand 18, modifications to delivery bellmouth shown on Drawings B.154505 and 152071. The suggestion to mount the trumpets through a hole in the front of the water box would make them difficult to remove in the event of a cobble being fast in the receiving guide of No. 18 and being through the water box. In the case of a pigtail there are sometimes three pieces in the one hole through the water sprayers and this bellmouth. Could not the overall length of the water box be reduced to give more space to work in front of the entry to Stand 18? This gap could then be bridged by mounting a steady guide and pigtail stopper on the front of the waterbox in place of the present trumpets.

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Arbed-Esch Report:

GENERAL:

There have been delays recently which have hindered production namely:-

1. More than six hours downtime with faults in the timing circuits of the photocell of the crop and cobble shears. Radio type tubes are used in the Westinghouse equipment on the Arbed mill and are troublesome. The transistorized equipment used in the other mills is more reliable.

2. On every shift 1/2 hours and more of rolling time is lost when clearing out the scrap pit under the 1st and 2nd group of C & C shears. Siemag have submitted drawings of a revised crop chute and scrap bin, which Arbed are making up to instal in two weeks time.

3. Now that the mill is running almost continuously on maximum speed, the incidence of cobbles at the repeaters is much higher. The largest percentage are cobbles at No. 17 entry, from backend pigtails, twisted and folded loops etc. The condition only arises when the mill is running with badly balanced loops, either from uneven pass wear or bad setting in the mill. In the last week numerous cobbles at No. 17 have been caused by running with the outside loop pulling in, and getting under the loops of Strands 1 & 2. This action causes a ripple to form and a fold in the loop is pulled up into the receiving guide.

4. An interesting point has arisen this week in that the German Din Standards for Hot Coiled products, require that the stock be paid off from a coil in a counter clockwise direction. Due to the handing of our laying reel cones, the stock would be unwound to a wire drawing machine in a clockwise direction.

not correct.

J. C. ANDREWS

JCA/swf
cc E.H.Fors
Worcester
W.Murray
All Field Engineers